

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1 - 17 (canceled).

18. (currently amended): An aqueous polyurethane dispersion, prepared by

(A) first reacting (a) 10 - 40 about 53.1 wt% of an aromatic diisocyanate with (b) 1-15 wt% of a compound containing active hydrogen and a hydrophilic group or a group capable of forming hydrophilicity, to form a diisocyanate-terminated compound containing a hydrophilic group or a group capable of forming hydrophilicity;

(B) then reacting the diisocyanate-terminated compound with (c) ~~30~~ about 43.0 - ~~80~~ about 81.5 wt% of a polyol to form a prepolymer containing a hydrophilic group or a group capable of forming hydrophilicity, and optionally neutralizing the prepolymer;

(C) dispersing the prepolymer in water to form an aqueous dispersion; ~~and~~

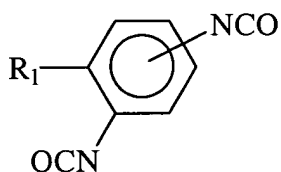
(D) ~~chain-extending the dispersed prepolymer to obtain an aqueous polyurethane dispersion by adding thereto (d) 0.1-5 wt% of a chain extender when the aqueous dispersion has an~~ monitoring an NCO-content between about 0.8-8.0 wt% of the aqueous dispersion; and

(E) chain-extending the dispersed prepolymer to obtain an aqueous polyurethane dispersion by adding thereto (d) 0.1-5 wt% of an amine chain extender, which is different from the polyol, under the NCO-content of the aqueous dispersion between about 0.8-8.0 wt% through monitoring,

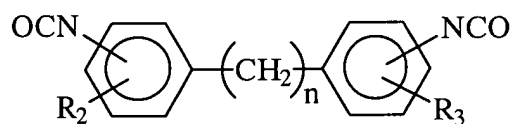
wherein the wt% is based on the total weight of compounds (a), (b), (c) and (d).

19. (currently amended): The aqueous polyurethane dispersion as claimed in claim 18, wherein the step (A) is conducted at a temperature of about 40-90°C.

20. (currently amended): The aqueous polyurethane dispersion as claimed in claim 18, wherein the aromatic diisocyanate is selected from the group consisting of the compounds of formula (I) and (II) and the mixture thereof:



(I)



(II)

wherein R₁ is H or C₁₋₆ alkyl; each of R₂ and R₃, independently, is H, C₁₋₆ alkyl, C₁₋₆ alkoxyl, or C₆ aryl; and n is an integer of 0-3.

21. (currently amended): The aqueous polyurethane dispersion as claimed in claim 18, wherein the aromatic diisocyanate comprises toluene diisocyanate (TDI).

22. (currently amended): The aqueous polyurethane dispersion as claimed in claim 18, wherein the aromatic diisocyanate comprises p-phenylene diisocyanate (PPDI).

23. (currently amended): The aqueous polyurethane dispersion as claimed in claim 18, wherein the aromatic diisocyanate comprises 4,4'-diphenylmethane diisocyanate (MDI).

24. (currently amended): The aqueous polyurethane dispersion as claimed in claim 18, wherein the aromatic diisocyanate comprises p,p'-bisphenyl diisocyanate (BPDI).

25. (currently amended): The aqueous polyurethane dispersion as claimed in claim 18, wherein the aromatic diisocyanate comprises a mixture of a diisocyanate monomers and dimers or trimers thereof.

26. (currently amended): The aqueous polyurethane dispersion as claimed in claim 18, wherein the aromatic diisocyanate comprises a mixture of (a1) TDI or PPDI and (a2) MDI or BPDI, and (a1) constitutes at least 30 mol% of the mixture.

27. (currently amended): The aqueous polyurethane dispersion as claimed in claim 18, wherein the aromatic diisocyanate comprises a mixture of (a1) TDI or PPDI and (a2) dimers or trimers of (a1), and (a1) constitutes at least 30 mol% of the mixture.

28. (currently amended): The aqueous polyurethane dispersion as claimed in claim 18, wherein the polyol has a number-average molecular weight of about 200-6,000.

29. (currently amended): The aqueous polyurethane dispersion as claimed in claim 18, wherein the polyol is selected from the group consisting of polyester polyols, polyether polyols, polycarbonate polyols, polycaprolactone polyols, polyacrylate polyols, and mixtures thereof.

30. (currently amended) The aqueous polyurethane dispersion as claimed in claim 18, wherein (b) the compound containing active hydrogen is capable of forming a hydrophilic group selected from the group consisting of -COO^- , -SO_3^- , N^+R_4 where R is alkyl, $\text{-(CH}_2\text{CH}_2\text{O)-}$, and mixtures thereof.

31. (currently amended): The aqueous polyurethane dispersion as claimed in claim 18, wherein (b) the compound containing active hydrogen is selected from the group consisting of dimethylol propionic acid (DMPA), dimethylol butanoic acid (DMBA), polyethylene oxide glycol, bis(hydroxyethyl) amine, sodium 3-bis(hydroxyethyl) aminopropanesulfonate, and mixtures thereof.

32. (currently amended): The aqueous polyurethane dispersion as claimed in claim 18, wherein the amine chain extender is a diamine, triamine, or tetraamine.

33. (currently amended): The aqueous polyurethane dispersion as claimed in claim 18, wherein the amine chain extender is selected from the group consisting of $\text{H}_2\text{N-(CH}_2\text{)}_m\text{-NH}_2$

where m is an integer of 0-12, methyl-1,5-pentamethylene diamine, diethylene triamine (DETA), and triethylene tetraamine (TETA).

34. (currently amended): A dried film of the aqueous polyurethane dispersion as claimed in claim 18, which exhibits a tensile strength above 320 kg/cm^2 and an ultimate elongation of above 320%.

35. (currently amended) A method of making an aqueous polyurethane dispersion, comprising the steps of:

(A) first reacting (a) 10 - 40 ~~about 53.1~~ wt% of an aromatic diisocyanate with (b) 1-15 wt% of a compound containing active hydrogen and a hydrophilic group or a group capable of forming hydrophilicity, to form a diisocyanate-terminated compound containing a hydrophilic group or a group capable of forming hydrophilicity;

(B) then reacting the diisocyanate-terminated compound with (c) ~~30 about 43.0 - 80 about 81.5~~ wt% of a polyol to form a prepolymer containing a hydrophilic group or a group capable of forming hydrophilicity, and optionally neutralizing the prepolymer;

(C) dispersing the prepolymer in water to form an aqueous dispersion; and

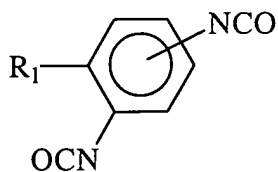
(D) monitoring ~~chain-extending the dispersed prepolymer to obtain an aqueous polyurethane dispersion by adding thereto (d) 0.1-5 wt% of a chain extender when the aqueous dispersion has an NCO-content between about 0.8-8.0 wt%.~~ of the aqueous dispersion; and

(E) chain-extending the dispersed prepolymer to obtain an aqueous polyurethane dispersion by adding thereto (d) 0.1-5 wt% of an amine chain extender, which is different from the polyol, under the NCO-content of the aqueous dispersion between about 0.8-8.0 wt% through monitoring,

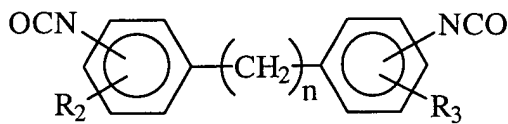
wherein the wt% is based on the total weight of compounds (a), (b), (c) and (d).

36. (original): The method as claimed in claim 35, wherein the step (A) is conducted at a temperature of about 40-90°C.

37. (original): The method as claimed in claim 35, wherein the aromatic diisocyanate is selected from the group consisting of the compounds of formula (I) and (II) and the mixture thereof:



(I)



(II)

wherein R₁ is H or C₁₋₆ alkyl; each of R₂ and R₃, independently, is H, C₁₋₆ alkyl, C₁₋₆ alkoxy, or C₆ aryl; and n is an integer of 0-3.

38. (original): The method as claimed in claim 35, wherein the aromatic diisocyanate comprises toluene diisocyanate (TDI).

39. (original): The method as claimed in claim 35, wherein the aromatic diisocyanate comprises p-phenylene diisocyanate (PPDI).

40. (original): The method as claimed in claim 35, wherein the aromatic diisocyanate comprises 4,4'-diphenylmethane diisocyanate (MDI).

41. (original): The method as claimed in claim 35, wherein the aromatic diisocyanate comprises p,p'-bisphenyl diisocyanate (BPDI).

42. (currently amended): The method as claimed in claim 35, wherein the aromatic diisocyanate comprises a mixture of a diisocyanate monomers and dimers or trimers thereof.

43. (original): The method as claimed in claim 34, wherein the aromatic diisocyanate comprises a mixture of (a1) TDI or PPDI and (a2) MDI or BPDI, and (a1) constitutes at least 30 mol% of the mixture.

44. (original): The method as claimed in claim 35, wherein the aromatic diisocyanate comprises a mixture of (a1) TDI or PPDI and (a2) dimers or trimers of (a1), and (a1) constitutes at least 30 mol% of the mixture.

45. (original): The method as claimed in claim 35, wherein the polyol has a number-average molecular weight of about 200-6,000.

46. (original): The method as claimed in claim 35, wherein the polyol is selected from the group consisting of polyester polyols, polyether polyols, polycarbonate polyols, polycaprolactone polyols, polyacrylate polyols, and mixtures thereof.

47. (currently amended): The method as claimed in claim 35, wherein (b) the compound containing active hydrogen is capable of forming a hydrophilic group selected from the group consisting of -COO^- , -SO_3^- , N^+R_4 where R is alkyl, $\text{-(CH}_2\text{CH}_2\text{O)-}$, and mixtures thereof.

48. (original): The method as claimed in claim 35, wherein (b) the compound containing active hydrogen is selected from the group consisting of dimethylol propionic acid (DMPA), dimethylol butanoic acid (DMBA), polyethylene oxide glycol, bis(hydroxyethyl) amine, sodium 3-bis(hydroxyethyl) aminopropanesulfonate, and mixtures thereof.

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49. (currently amended): The method as claimed in claim ~~48~~ 35, wherein the amine chain extender is a diamine, triamine, or tetraamine.

50. (currently amended): The method as claimed in claim ~~48~~ 35, wherein the amine chain extender is selected from the group consisting of $\text{H}_2\text{N}-(\text{CH}_2)_m-\text{NH}_2$ where m is an integer of 0-12, methyl-1,5-pentamethylene diamine, diethylene triamine (DETA), and triethylene tetraamine (TETA).